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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,149	09/22/2003	Tomoaki Takahashi	Q77106	5778

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WASHINGTON, DC 20037-3213

EXAMINER	
HUFFMAN, JULIAN D	

ART UNIT	PAPER NUMBER
2853	

MAIL DATE	DELIVERY MODE
09/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary	Application No.	Applicant(s)	
	10/665,149	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Julian D. Huffman	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,38,41,42,44,45 and 50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *38,42,45 and 50* is/are allowed.

6)☒ Claim(s) *1-8,41 and 44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 June 2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 5-8, 41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mantell (U.S. 6,189,993 B1) in view of Billet (U.S. 6,010,205).

Mantell discloses:

With regards to claim 1,

an ink jet recording apparatus (fig. 4) comprising:

a recording head (fig. 4, element 20) provided with a pressure generating element (column 1, lines 24-26);

a scanning mechanism for moving the recording head in a main scanning direction (14);

a data developer for developing print data into multi-bit jetting data (132);

a drive signal generator for generating a drive signal including a plurality of drive pulses, on every unit print cycle (21);

a translator for translating the multi-bit jetting data into pulse select information associated with the respective drive pulses (21, column 10, lines 17-23);

a drive pulse supplier (20, 21) for selectively supplying at least one of the drive pulses to the pressure generating element in accordance with the pulse select information to drive the pressure generating element;

a basic recording mode for recording a dot having a size which is selected from one of a plurality of sizes, in a basic unit pixel which is associated with a unit recording area corresponding to the unit print cycle (draft mode, prints one dot per basic unit pixel area, column 5, lines 62-65);

a high-resolution recording mode for recording a dot in a fine unit pixel, a plurality of fine unit pixels being arranged within the unit recording area in the main scanning direction (any one of the higher levels of grayscale, up to four drops per pixel area, column 6, lines 21-39, pixels can be deposited at different fine unit pixel locations in a superpixel);

a scanning controller for causing the scanning mechanism to move the recording head in the main scanning direction (124); and

a mode selector for selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode (fig. 5),

wherein the data developer develops the print data into the jetting data so as to indicate the size of the dot to be recorded in the basic unit pixel when the mode selector selects the basic recording mode (the number of dots deposited is equivalent to the size of the dot recorded); and

wherein the data developer develops the print data into the jetting data such that each bit therein indicates whether the recording is conducted or not in each associated fine unit pixel, when the mode selector selects the high-resolution recording mode (the print data is digital and indicates whether recording is conducted or not in each pixel),

wherein the same drive signal is used in each of the basic recording mode and the high-resolution recording mode (since the drops are identical throughout the recording modes, the same drive signal is used).

With regards to claim 2, the data developer develops the print data into the jetting data such that bits therein indicate the size of the dot to be recorded in the unit recording area, when the mode selector selects the basic recording mode (since the jetting data indicates how many droplets of ink to deposit in each unit recording area, it indicates the size of the dot to be recorded).

With regards to claim 5, the mode selector selects the recording mode in accordance with the print data (column 9, lines 58-62, the print mode is determined based on the media type and print quality, which are values stored with the print data and transmitted by the print driver).

With regards to claim 6, the plural drive pulses are of an identical profile (only one type of drive pulse is used).

With regards to claim 7, the drive pulses are spaced at constant intervals within the unit print cycle (fig. 3, the dots are constantly spaced, thus the drive signals are constantly spaced when the carriage moves at a constant velocity).

With regards to claim 8, an initial trigger for starting the unit print cycle is derived from the scanning mechanism (46).

With regards to claim 41, either one of the recording in the basic unit pixel and the fine unit pixel is performed by a single movement of the recording head in the main scanning direction (recording of the basic unit pixel in the draft recording mode is performed by a single movement of the recording head in the main scanning direction since only one droplet of ink is ejected in the unit pixel area).

With regards to claim 44, a volume of every ink droplet ejected from the recording head is the same irrespective of the mode selected by the mode selector (fig. 3).

Mantell adjust the recording speed depending on the maximum firing frequency (column 8, lines 29-41)

Mantell does not disclose the scanning mechanism moving the recording head at the same speed irrespective of the recording mode selected.

Billet discloses that by operating a device at the same speed regardless of a printing mode, nozzles are not operating at their maximum firing frequency for all of the print modes, and compensation for inoperative nozzles can be conducted by activating operative nozzles in their place (column 8, lines 56-63).

It would have been obvious to one having ordinary skill in the art at the time of the invention to move the carriage at a constant velocity regardless of the print mode, as suggested by Billet, for the purpose of enabling inoperative nozzles to be compensated by operative nozzles.

4. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mantell in view of Billet as applied to claims 1, 2, 5-8, 41 and 44 above and further in view of Bain (U.S. 4,521,786).

Mantell as modified discloses everything claimed with the exception of rewritable waveform select tables.

Bain discloses rewritable waveform select tables (column 4, lines 51-64).

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the waveform select tables of Bain into the invention of Mantell for the purpose of enabling jet-to-jet cross talk compensation or frequency-dependent compensation and closed loop printhead control (column 4, lines 51-64).

Allowable Subject Matter

5. Claims 38, 42, 45 and 50 are allowed.

Response to Arguments

6. Applicant's argument concerning new claim 50 is persuasive.

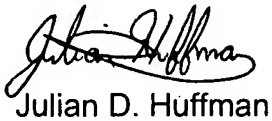
Applicant's arguments concerning claims 1, 2, 5-8, 41 and 44 are noted, however, the claims are unpatentable over Mantell in view of Billet.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Julian D. Huffman
Primary Examiner
Art Unit 2853
30 August 2007